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10/661,400

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J. Christopher Marmo

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EXAMINER

PREBILIC, PAUL B

ART UNIT

PAPER NUMBER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/661,400	<b>Applicant(s)</b> MARMO ET AL.	
	<b>Examiner</b> Paul B. Prebilic	<b>Art Unit</b> 3774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) 90,99,112,113,187,189,204,205 and 207 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Continuation of Disposition of Claims: Claims pending in the application are 81-86,89, 90, 92, 94-108,112,113,121-130,132,134-137,140,150,160-171,173,177-180,182-190, 192-198, 200, and 202-235.

Continuation of Disposition of Claims: Claims rejected are 81-86,89, 90, 92, 94-98, 100-108,121-130,132,134-137,140,150,160-171,173,177-180,182-186, 188, 190, 192-198, 200, and 202, 203, 206, 208-235.

***Election/Restrictions***

Claims 90, 99, 112, 113, 187, 189, 204, 205, and 207 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Claims 90, 187 and 205 were also withdrawn because they required searching and examination of the non-elected species. Claims 112 and 113 were also withdrawn because they were dependent upon withdrawn claim 99 that contains subject matter of a different species. Applicant timely traversed the restriction (election) requirement in the reply filed on August 14, 2006.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 81-85, 89, 92, 94-95, 97, 98, 105, 106, 108, 182-183, 185, 188, 222-227 and 232-235 are rejected under 35 U.S.C. 103(a) as obvious over Perez (WO 02/06883) in view of Feingold (US 7,207,998) in further view of in further view of Ting (US 5,192,316) in further view of Simon et al (US 5,547,468) or Hoffer (US 4,636,210). Perez teaches a method of creating a pocket between the epithelial layer of a cornea and the corneal stromal margin and then inserting a lens therein before closure thereof; see Figures 5 and page 19, lines 1-16. However, Perez fails to disclose the pocket has a periphery that is substantially attached to Bowman's membrane as claimed or

attachment of the lens onto Bowman's membrane. Feingold teaches that it was known to form intracorneal pockets with peripheries that are substantially attached to the peripheries thereof; see Figures 2a, 2b, and 6a-7 and column 3, lines 60-65 and column 6, lines 61-67. Ting teaches that it was known to attach corneal lens implants to Bowman's membrane as one of several places that such lenses can be attached; see Figures 1 and 2 and column 5, lines 20-35 and compare to the other locations that the lenses are implanted by inspection of the figures and the corresponding description thereof. Additionally, Simon [see column 8, lines 39-41] or Hoffer [see column 1, lines 51-59] teaches that it was known to make slits in the eye as small as possible to reduce trauma and healing time. Therefore, it is the Examiner's position that it would have been obvious to do the same in the Perez method in order to more securely hold the lens thereof to Bowman's membrane as suggested by Feingold. Additionally, it would have been obvious to make the incision of Perez as small as possible to reduce trauma and healing time as taught by Simon or Hoffer.

With regard to claim 84, Applicants are directed to Figures 46-53 and column 18, line 15 et seq.

With regard to claim 85, it was inadvertently left out of the rejection statement of the previous Office action. However, it should have been included with the first prior art rejection supra. Clearly, the lens is inherently deformed as it is formed particularly when the material is in a semisolid state such deformation would inherently occur due to gravity acting on the device while laying on a solid surface.

With regard to claim 183, the curved surface of the ocular material is the cellular attachment element to the extent required by the claim language.

Regarding claims 222 and 223, the attached periphery shown in Feingold's Figure 7 appears to be at least about one half to three fourths of the total periphery. For this reason, the claimed features are considered at least clearly obvious in view of this teaching of Feingold.

Regarding claims 232-235, Feingold teaches that it was known to utilize various lens types to treat various eye disorders; see the abstract. Therefore, it would have been considered prima facie obvious to an ordinary artisan to utilize a lens adapted for a particular known eye disorder in the Perez method to treat the same in that it would be a mere substitution of one known element for another to yield a predictable result; see MPEP 2143.

Claims 96, 100-102, 150, 178, 179 and 184 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez (WO 02/06883), Feingold, Ting, Simon, and Hoffer as applied to claims 81-85, 89, 92, 94-95, 97, 98, 105, 106, 108, 182-183, 185, and 188 above, and further in view of Brown et al (US 4,959,353). Perez (WO 02/06883) fails to disclose the application of a healing agent as claimed. However, Brown teaches that it was known to apply a healing agent to the corneal tissue after similar surgical operations; see the title and column 1, lines 15-35. Therefore, it is the Examiner's position that it would have been obvious to apply a healing agent to the cornea in the Perez method in order to promote healing therein.

With regard to claim 100, Applicants are directed to column 4, lines 43-57 of Brown.

Claims 121-123, 126, 132, 140, 160, 163-166, 173, and 192 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez (WO 02/06883), Feingold, Ting, Simon, and Hoffer as applied to claims 81-85, 89, 92, 94-95, 97, 98, 105, 106, 108, 182-183, 185, and 188 above, and further in view of Miller (US 6,335,006). Perez (WO 02/06883) fails to disclose the use of a liquid to loosen the epithelial layer as claimed. However, Miller teaches that it was known to use liquids of various types to loosen epithelial layers; see column 1, line 65 to column 3, line 29. Therefore, it is the Examiner's position that it would have been obvious to use the Miller procedure to loosen the epithelial tissue in Perez process for the same reasons that Miller does the same and in order to promote a clean separation of the tissue layers.

Claims 124, 125, 134-137, 161, 162, and 193 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, Hoffer, and Miller as applied to claims 121-123, 126, 132, 140, 160, 163, 165, 166, 173, and 192 above, and further in view of Perez (US 2003/0220653). Perez fails to teach the use of a hypertonic solution to loosen the epithelial layer. However, Perez teaches that such solutions were known to the art at the time the invention was made; see paragraph [0150]. Therefore, it is the Examiner's position that it would have been obvious to utilize a hypertonic solution for the loosening procedure of Miller for the same reasons that Perez utilizes the same and in order to prevent the use of toxic residues to the eye tissue that could cause toxicity problems after surgery.

The hypertonic solution subject matter of Perez has an effective filing date of January 17, 2002 based upon provisional application 60/350,003; see paragraphs [0050] to [0052] thereof and see MPEP 2163.03 III that is incorporated herein by reference.

With regard to claims 134-137, Applicants are directed to see paragraphs [0094] to [0105] of Perez.

Claim 171 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, Hoffer and Miller as applied to claims 121-123, 126, 132, 140, 160, 163, 164, 165, 166, 173, and 192 above, and further in view of Peyman (US 2004/0015234). Perez discloses utilizing various instruments to make incisions in the cornea, but fails to teach that use of a microkeratome. However, Peyman ('234) teaches that it was known to utilize a microkeratome to make incisions in similar corneal procedures in the art. Therefore, it is the Examiner's position that it would have been obvious to utilize a microkeratome to make the incisions of Perez for the same reasons that Peyman ('234) utilizes the same and in order to make a very clean and precise incision as compared to other procedures of the art.

Claim 177 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, Hoffer and Miller as applied to claims 121-123, 126, 132, 140, 160, 163-166, 173, and 192 above, and further in view of Brown (US 4,959,353). Perez fails to disclose the application of a healing agent as claimed. However, Brown teaches that it was known to apply a healing agent to the corneal tissue after similar surgical operations; see the title and column 1, lines 15-35. Therefore, it is the Examiner's



position that it would have been obvious to apply a healing agent to the cornea in the Perez method in order to promote healing therein.

Claims 180, 194-196, 200, 202, 206, and 209 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, and Hoffer as applied to claims 81-85, 89, 92, 94-95, 97, 98, 105, 106, 108, 182-183, 185, and 188 above, and further in view of Cumming (US 5,984,914). Perez fails to disclose the use of cooling as claimed. However, Cumming teaches that it was known to cool ablated tissue when forming a pocket to prevent further damage due to heat; see claims 1 and 8 as well as column 3, lines 58-63. Therefore, it is the Examiner's position that it would have been obvious to cool the eye tissue during pocket formation for the same reasons that Cumming did the same.

Claim 211 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, Hoffer and Cumming as applied to claim 194 above, and further in view of Nigam (US 6,361,560). Perez fails to disclose the use of a microkeratome to form the pocket as claimed. However, Nigam teaches that it was known from pockets with microkeratome within the art; see column 1, lines 40-44 and column 3, lines 26-32. For this reason, it is the Examiner's position that it would have been obvious to form the pockets of Perez with a microkeratome for the same reasons that Nigam does the same and because such devices are widely available to an ordinary artisan.

Claim 107 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, and Hoffer as applied to claim 81 above, and further in view of Peyman (US 2004/0015234). Perez discloses utilizing various instruments to make

incisions in the cornea, but fails to teach that use of a microkeratome. However, Peyman ('234) teaches that it was known to utilize a microkeratome to make incisions in similar corneal procedures in the art. Therefore, it is the Examiner's position that it would have been obvious to utilize a microkeratome to make the incisions of Perez for the same reasons that Peyman ('234) utilizes the same and in order to make a very clean and precise incision as compared to other procedures of the art.

Claims 197 and 198 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Hoffer, Simon and Cumming as applied to claim 194 above, and further in view of Perez (US 2003/0220653). Perez fails to teach the use of a salt and water solutions to the cornea. However, Perez teaches that such solutions were known to the art at the time the invention was made; see paragraph [0150]. Therefore, it is the Examiner's position that it would have been obvious to utilize a hypertonic solution for the loosening procedure of Perez (WO) for the same reasons that Perez ('635) utilizes the same and in order to prevent the use of toxic residues to the eye tissue that could cause toxicity problems after surgery.

Claims 186 and 190 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, and Hoffer as applied to claim 81 above, further in view of Isseroff et al (US 2002/0039788). Perez discloses making lenses out of collagen but not out of recombinant collagen as now claimed. However, Isseroff teaches that it was known to make similar corneal repair materials out of recombinant collagen. For this reason, it is the Examiner's position that it would have been obvious

to utilize recombinant collagen as the collagen of Perez for the same reasons that Isseroff uses the same or for improved healing properties.

Claims 203 and 208 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, Hoffer and Cumming as applied to claim 194 above, and further in view of Isseroff et al (US 2002/0039788). Perez discloses making lenses out of collagen but not out of recombinant collagen or collagen other than Type I as now claimed. However, Isseroff teaches that it was known to make similar corneal repair materials out of recombinant collagen or collagen other than Type I. For this reason, it is the Examiner's position that it would have been obvious to utilize recombinant collagen as the collagen of Perez for the same reasons that Isseroff uses the same or for improved healing properties.

Claim 210 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, Hoffer and Cumming as applied to claim 194 above, and further in view of Brown (US 4,959,353). Perez fails to disclose the use of growth factors such as healing agents as claimed. However, Brown teaches that it was known to apply a healing agent to the corneal tissue after similar surgical operations; see the title and column 1, lines 15-35. Therefore, it is the Examiner's position that it would have been obvious to apply a healing agent to the cornea in the Perez method in order to promote healing therein.

Claim 86 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Hoffer, and Simon as applied to claim 81 above, and further in view of Civerchia (US 4,983,181). Perez fails to disclose the step of removing an old lens and

replacing it with a new one as claimed. However, Civerchia teaches that it was known to the art to remove and replace lenses as necessary; see column 7, lines 7-20.

Therefore, it is the Examiner's position that it would have been obvious to do the same in the Perez method for the same reasons that Civerchia does the same.

Claims 103 and 104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, and Hoffer as applied to claim 81 above, and further in view of Viegas et al (US 5,587,175). Perez fails to disclose the application of a cellulosic agent to the eye as claimed. However, Viegas teaches that it was known to the art to apply cellulose during eye surgery as a way to treat and fill the same; see the abstract and column 5, lines 53-59. Therefore, it is the Examiner's position that it would have been obvious to apply cellulose to the eye during the Perez method for the same reasons that Viegas does the same.

Claims 212 and 213 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez (WO 02/06883), Feingold, (US 7,207,998), Ting (US 5,192,316), Simon et al (US 5,547,468) and Hoffer (US 4,636,210) in view of Viegas et al (US 5,587,175). The teachings of Feingold and Simon or Hoffer are explained *supra* and that explanation is incorporated herein by reference. Perez fails to disclose the application of a cellulosic agent to the eye as claimed. However, Viegas teaches that it was known to the art to apply cellulose during eye surgery as a way to treat and fill the same; see the abstract and column 5, lines 53-59. Therefore, it is the Examiner's position that it would have been obvious to apply cellulose to the eye during the Perez method for the same reasons that Viegas does the same.

Claims 127-130, 167-170, and 214-221 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, Hoffer and Miller as applied to claims 121-123, 126, 132, 140, 160, 163, 165, 166, 173, and 192 above, and further in view of Viegas et al (US 5,587,175). Perez fails to disclose the application of a cellulosic agent to the eye as claimed. However, Viegas teaches that it was known to the art to apply cellulose during eye surgery as a way to treat and fill the same; see the abstract and column 5, lines 53-59. Therefore, it is the Examiner's position that it would have been obvious to apply cellulose to the eye during the Perez method for the same reasons that Viegas does the same.

Claims 228 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, and Hoffer as applied to claim 81 above, and further in view of Liao et al (US 6,241,766 or Carson et al (US 2001/0018612). Perez fails to disclose the application of a cellulosic agent to the eye as claimed. However, Liao (see column 3, lines 7-17) or Carson (see paragraph [0027] teaches that it was known produce corneal lenses that are folded or rolled for insertion. Therefore, it is the Examiner's position that it would have been obvious to fold or roll the softer hydrogel lenses for insertion into the pocket as a way to reduce the incision size or for the reasons that Liao or Carson do the same.

Claims 229-231 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez, Feingold, Ting, Simon, and Hoffer as applied to claim 81 above, and further in view of Peyman (US 6,702,807). Perez fails to disclose the thickness of the lenses used therewith but does suggest that the edges can be tapered to be very thin; see

Figure 14e. However, Peyman teaches that it was known to make intracorneal inlays from 10 to 400 microns thick; see the paragraph bridging columns 5 and 6. Therefore, it is the Examiner's position that it would have been obvious to make the edge of Perez less than 30 microns, which would inherently promote cell migration, for the same reasons that Perez makes the edges tapered and so the lens thickness would be suitable for implantation into a cornea.

### ***Response to Arguments***

Applicant's arguments filed October 7, 2009 have been fully considered but they are not persuasive.

In response to the traversal of the first 103 rejection that Perez teaches implanting the lens onto the corneal stromal margin and not onto the Bowman's membrane as claimed, the Examiner respectfully agrees and has amended the rejection to include Ting that teaches that it was well known to the art to implant lenses onto Bowman's membrane as an alternative to implantation onto other corneal layers.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

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reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In response to applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

### **Conclusion**

Applicant should specifically point out the support for any amendments made to the disclosure, including the claims (MPEP 714.02 and 2163.06). Due to the procedure outlined in MPEP 2163.06 for interpreting claims, it is noted that other art may be applicable under 35 USC 102 or 35 USC 103(a) once the aforementioned issue(s) is/are addressed.

Applicant is respectfully requested to provide a list of all copending applications that set forth similar subject matter to the present claims. A copy of such copending claims is respectfully requested in response to this Office action if the application is not stored in image format (i.e. the IFW system) or published.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Paul B. Preblich whose telephone number is (571) 272-4758. He can normally be reached on 6:30-5:00 M-Th.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Isabella can be reached on 571-272-4749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Paul Prebilic/  
Paul Prebilic  
Primary Examiner  
Art Unit 3774